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sionary about 1770 ('Luces del Otomi,' pp. 303). We have others, but it is one of the most valuable, and is carefully edited.

The assertion has been several times advanced by Mexican writers that there is a relationship between the Otomi and the Apache, that is, the Athapascan stock. I made a careful comparison of one hundred test words between the two groups, and sent the results to the Congress of Americanists at Stockholm, but I am informed that the paper has been lost. It showed that a sufficient number of verbal similarities exist to render either linguistic relationship or admixture probable.

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#### NOTES ON INORGANIC CHEMISTRY.

IN a recent number of the *Comptes Rendues* P. de Wateville describes a method of growing crystals with a transparency and luster analogous to those of cut and polished stones. The small crystal is so mounted that while growing in a saturated solution it can be continuously rotated on itself with a speed of several rotations a second. In alum crystals thus grown at 50°, dodecahedron and cube faces progressively disappear, those of the octahedron alone finally remaining. Potassium and ammonium alums, copper sulfate and sodium chlorate are said by the author to give particularly fine results.

IN the *American Chemical Journal* for April Professors Jackson and Comey, of Harvard, describe a peculiar hydrogel formed by the action of nitric acid on potassium cobalticyanid. When a strong solution of the latter salt is boiled with an equal volume of concentrated nitric acid for two hours it suddenly changes into a dark red semi solid gelatinous mass. This jelly is insoluble in acid or salt solutions, but somewhat soluble in cold or boiling water, and more so in water at 60°. This solution can be evap-

orated without gelatinizing, and the residue from evaporation when moistened with water decrepitates with a series of insignificant explosions to a red powder, almost insoluble in cold water, but somewhat soluble in water at 60°. The formula from analysis is  $\text{KH}_2\text{Co}_3(\text{CN})_{11}, \text{H}_2\text{O}$ , provisionally called monopotassium cobaltocobalticyanid. Several other salts (barium, silver and copper) of the acid were made. A similar jelly has been formed by the authors by the action of nitric acid on potassium ferricyanid. On boiling potassium ruthenium nitrosochlorid,  $\text{K}_2\text{RuCl}_5\text{NO}$  with potassium cyanid in quantity insufficient to convert it into the ruthenocyanid, the writer has obtained a similar hydrogel with almost identical properties.

ACCORDING to the recently published report of the Russian Department of Mines for 1895, the production of platinum for that year was 9,700 pounds, a decrease of 1,700 pounds from that of the year preceding. The production of all other mineral products showed a decided increase, except that of gold, which decreased slightly. The largest relative increase was in mercury, the production of which, 500 tons, was more than twice that of the previous year.

J. L. H.

#### SCIENTIFIC NOTES AND NEWS.

AT a meeting of the Academy of Natural Sciences of Philadelphia, held the 13th inst., the following was unanimously adopted: The Academy of Natural Sciences, of Philadelphia, has received, with profound sorrow the announcement of the death of Professor Edward Drinker Cope. It is fitting that this meeting should place on record a minute expressive of its sense of the loss sustained. The Academy witnessed the beginning and the end of his long labors. It was to its halls he came as a student in 1859 and it was to them he paid his last visit before his final illness. The lustre thrown upon the society by his researches is but a reflex of the spirit of this remarkable man, who exhibited,

in a way rarely equalled in the history of science, the consecration of a powerful intellect to the pursuit of the knowledge of nature. To an almost unerring accuracy of observation he conjoined admirable judgment. He was unexcelled as an expert in the field of vertebrate zoology of both present and extinct forms; he discovered great numbers of genera and species; he announced startling and epoch-making schemes of classification; he framed comprehensive systems of philosophy based on biologic premises. One hesitates which to admire the most, the tenacity of his memory, the brilliancy of his wit, or the ease with which he used his enormous erudition. To any community and at any time the loss of such a man is a calamity.

MR. M. E. D. TROWBRIDGE writes from Detroit that Professor F. W. Putnam, Permanent Secretary of the American Association for the Advancement of Science, visited Detroit on the 8th inst., in the interests of the meeting to be held in this city next August. He reported himself highly pleased with the facilities offered by the new high school building for the accommodation of the several sections of the Association. At present there is promise of a most successful meeting. Local committees are at work to provide interesting features for the entertainment of their guests. While in the city Professor Putnam spoke upon the Ruins of Copan, Honduras, under the auspices of the Detroit Archæological Society. There was an interested audience of 2,500 people. Professor Putnam was introduced by Professor M. L. D'Ooge, of the University of Michigan, President of the Detroit Archæological Society.

A CONFERENCE was held on April 15th by Provost Harrison, of the University of Pennsylvania; President Schurman, of Cornell University, and President Low, of Columbia University, at the house of the latter, at which it was decided to ask Congress not to change the present law in regard to apparatus, books, etc. imported for public institutions. All the leading newspapers, Republican as well as Democratic, have protested against the imposition of a tax on science, literature and art, and it seems unlikely that the Senate committee will disregard this unanimous expression of public opinion.

MR. H. WILDE, President of the Manchester Scientific and Literary Society, has given the Paris Academy of Sciences the sum of £5,500 to be used for an annual prize of 4,000 fr. for a discovery or publication in physical science. The prize is to be international. Mr. Wilde states that he has made this gift as a return for the benefit he has drawn from French science.

M. RADAU, the astronomer, has been elected a member of the Paris Academy of Sciences in the room of the late M. Tisserand.

As we have already noted, the British Medical Association will hold its sixty-fifth annual meeting in Montreal, beginning on August 31st. The address of the President-elect, Dr. Roddick, will be on medical education in Canada. The address in medicine will be by Professor W. Osler, of Johns Hopkins University, and that in surgery by Mr. W. M. Banks, of Liverpool.

THE Board of Managers of the New York Zoological Society held a meeting on April 13th at which the plans of the park were discussed and especially the methods to be used in collecting the needed \$250,000. Several subscriptions of \$5,000 and others for smaller amounts were made by the managers.

PROFESSOR LÉON DU PASQUIER, of Neuchâtel, died after a brief illness on April 1st in his thirty-third year. He will be recalled by geologists as one of the most accomplished expert guides during the excursions offered in connection with the International Geological Congress at Zurich in 1894, and as author of a number of essays on the glacial geology of northern Switzerland.

DR. G. A. KENNGOTT, professor of mineralogy at Zurich, died on March 14th, aged seventy-nine years. He had made important contributions to crystallography and petrography and was one of the editors of 'Handwörterbuch der Mineralogie, Geologie und Paläontologie.'

WE also regret to record the deaths of Dr. F. W. Klatt, known for his contributions to botany; of Dr. Ludwig Hollaender, a writer on anatomy of the teeth; of Dr. Schols, professor of geology in the Polytechnic Institute at Delft; of Dr. Alfred Dewèore, the botanist; of Dr. Thollen, the geologist; of Dr. Ed. Freiherr

von Hårdtl, astronomer at Innsbruck, and of Dr. Jacob Breitenlohner, professor of meteorology at the Agricultural School of Vienna.

At a meeting held April 13th the Academy of Natural Sciences of Philadelphia conferred the Hayden Memorial Award for 1897, consisting of a bronze medal and the interest of the special endowment fund, on Professor A. Karpinski, the Chief of the Geological Survey of Russia, in recognition of the value of his contributions to geological and paleontological science.

PROFESSOR H. A. ROWLAND, of Johns Hopkins's University, has been elected an honorary member of the Royal Society of Edinburgh.

DR. GEORGE M. DAWSON, Chief of the Geological Survey of the Dominion of Canada, has been awarded the gold medal of the Royal Geographical Society of Great Britain, in recognition of his services in the surveys and maps of British Columbia, the Northwest Territory and the Yukon region.

ARRANGEMENTS are being made for the erection of a monument to Johannes Müller, in Coblenz, the place of his birth.

SIR JOHN EVANS, Treasurer of the Royal Society and President-elect of the British Association, has been elected a corresponding member of the Bologne Academy of Sciences in the room of Huxley.

DR. NANSEN lectured before the German Geographical Society on April 3d. The Society bestowed upon him the gold Humboldt medal. It was also announced that the Emperor had conferred on him the gold medal for science and art, 'the highest distinction which can be bestowed in Germany for peaceful achievements.' Dr. Nansen subsequently lectured at Copenhagen before the Danish Geographical Society, and received from the king the gold medal of merit with the royal crown.

LIEUTENANT ROBERT E. PEARY, now on duty at the New York Navy Yard, was detailed to Mare Island, Cal., by Secretary Long, but the order has been revoked at the request of those interested in the continuation of Lieut. Peary's Arctic explorations.

MR. ROBERT B. YOUND has been appointed

Assistant Biologist at the Department of Agriculture, and will be assigned to work in Oregon and Washington.

THE daily papers report that the building of the College of Agriculture of the University of California at Berkeley has been burned, the loss being estimated at \$400,000.

THE Governor of Florida has issued a call for a National Fisheries Congress to assemble at Tampa, Fla., on the 19th of January, 1898. The National Fishery Commission will take a prominent part in the proceedings, and the Governors of the different States are requested to send delegates. Governor Bloxham states that it is necessary to devise means to save from total extinction many varieties of valuable food fish.

THERE will be held an international fisheries exhibition at Bergen, Norway, from the 16th of May to September 30th of next year.

THE International Congress of Hygiene and Dermatology will be held in April next year, instead of this year, as was intended.

THE American Medico-Psychological Association will meet at Baltimore from the 11th to the 14th of May.

THE fifth International Congress of Criminal Anthropology will be held at Amsterdam in August, 1901.

THE New York Microscopical Society held its 18th annual exhibition on April 14th, at the American Museum of Natural History. There were nearly one hundred exhibits, which were examined with interest by a large number of visitors.

CHAS. SCRIBNER'S SONS announce the early publication of a series of volumes containing the 'Princeton lectures' delivered by distinguished foreigners during the week preceding the public sesqui-centennial exercises of Princeton University.

A NEW review for psychology and cognate subjects, including mental pathology, is announced to appear in Rome. It will be edited by a board of scholars, of whom Dr. Sancto di Sanctis, of the University of Rome, is to be Editor-in-Chief. Professor G. Sergi, the well-

known psychologist, is one of the directors of this review.

At the beginning of April a new American monthly entitled *Marine Engineering* was established.

PROFESSOR I. P. ROBERTS, Director of the Agricultural College, Cornell University, announces that the College has undertaken to assist teachers and parents interested in nature study by distributing, free of charge, leaflets giving instructions for the making of accurate observations of common objects.

AN editorial article in *Garden and Forest* includes a letter addressed to the Secretary of the Interior by the committee of the National Academy of Sciences appointed to consider the forestry policy of the government, which outlines the report, which will shortly be presented. This letter states that the report now in course of preparation provides: (1) That authority be given to the Secretary of War to make details of troops to protect, until a forest service is organized, the property of the government; (2) That a permanent forest bureau be established; (3) That a commission be appointed to institute, under the supervision of the Director of the Geological Survey, topographical surveys of the reservations and determine what portions of them should be permanently reserved; and (4) to authorize the Secretary of the Interior to issue regulations for the protection of the reservations, for sales of timber, for entrance to the reservations, etc.

IN *Science Progress* for April, Professor E. B. Poulton, of Oxford, prints, under the caption 'A Remarkable Anticipation of Modern Views of Evolution,' a note showing that Dr. James Cowles Pritchard, a distinguished pre-Darwinian anthropologist, anticipated by half a century the arguments urged by Weismann in favor of the non-transmission of acquired characters. This fact was brought to Professor Poulton's notice by Professor Mendola; and on consulting the work of Pritchard, entitled 'Researches into the Physical History of Mankind' (2d edition, 1826), Professor Poulton 'found that other important ideas are anticipated in it.' It throws an interesting side light not only upon the 'anticipation,' but also upon the attitude of Pritch-

ard's mind toward the subject, that in a later edition of the work he cut out the passage. It is for this reason, Professor Poulton thinks, that the anticipation escaped the notice of 'Darwin and others,' who 'always went to the later edition.'

IN an account of the work of the Lowell Observatory, for the last three months, published in the New York *Tribune* for April 17th, we are told: "Dr. Lee, who was in charge of the Observatory in the Southern heavens, announces that since January 1 more than three hundred thousand double and triple stars had been measured." Even for 'Dr. Lee,' from the vantage ground of an 'observatory in the Southern heavens,' this is doing finely—23 of them 'measured' per minute, day and night, more than half 'new,' as the *Tribune* tells us! We venture to suggest, however, that the *Tribune* is mistaken in stating that Sir John Herschel made larger additions to Southern stellar astronomy.' In his odd moments we are told that 'Dr. Lee' discovered 'many brilliant stars.' "In addition to these discoveries, his corroborative points of argument as to the formation of heavenly bodies will be exceptionally interesting—" the *Tribune* concludes.

A REUTER dispatch from Cape Town gives Dr. Koch's report on the rinderpest to the Secretary of the Agriculture Department, part of which is as follows: "I succeeded in immunizing within a fortnight several animals by means of a mixture of serum and virulent rinderpest blood to such a degree that they were enabled to withstand an injection of 20 ccm. of rinderpest blood, a ten-thousandth part of which is a fatal dose. From this fact I judge that the immunity of these animals is of a much higher degree, and I believe it is an active immunity equal to that of a beast which has contracted rinderpest and has then recovered. It is particularly important to know that only 20 ccm. of such serum are required to immunize one animal, and therefore one liter suffices for fifty head of cattle. A second and equally important fact is that one is able to render immune healthy cattle with the bile of such as have succumbed to rinderpest. In this case one hypodermic injection of 10 ccm. is sufficient. This immunity sets in on the tenth day at

the latest, and is of such an extent that even four weeks afterwards 40 ccm. of rinderpest blood could be injected without any injurious effect. I therefore conclude that the immunity produced in such a manner is of an 'active' nature. Rinderpest can be eradicated with but little difficulty and within a comparatively short time by putting these methods into practice. In infected parts nearly every case of rinderpest supplies a greater or less quantity of vaccine for those animals which are still healthy. I cannot but urge upon you the importance of bringing this method immediately to the notice of those cattle owners whose animals are suffering from or threatened by the disease." Dr. Koch offers to give a course of instruction at the experimental station at Kimberley.

DR. SCHLICH, C. I. E., professor of forestry at the Royal Indian Engineering College, Coopers-hill, read a paper at the Imperial Institute on Monday night on 'The Timber Supply of the British Empire.' Sir Stewart Colvin Bayley presided. According to the report in the London *Times* the lecturer said the average annual imports of timber into the several parts of the Empire during the years 1890-94 amounted to £19,135,000, while the exports averaged £5,114,000, showing that the net imports into the Empire reached the enormous sum of £14,021,000, an increase of £2,293,000 in six years, or a mean annual increase of £382,167. The United Kingdom was by far the greatest importing country within the Empire, having taken timber to the amount of £17,595,000 out of the total of £19,135,000. During 1894 the timber imported into Great Britain and Ireland from British colonies and dependencies was valued at £4,274,480, and foreign countries at £14,149,055. By far the larger portion of the timber imported into the United Kingdom came from Russia, Sweden, Norway, Germany, France and the United States, Canada being the only British dependency which at all equalled the export countries on the Baltic. Canada was estimated to contain 1,248,798 square miles of woodlands, but enormous tracts of that area did not contain any useful timber, while the remainder was by no means so well taken care of as it ought to be.

Fires were frequent and disastrous, and the quantity of timber thus lost to the colony was calculated to be many times more than that cut down and exported. Notwithstanding those drawbacks, however, he believed that with proper management and careful conservation of the forests Canada might, at a moderate relative expenditure, supply the whole world for many years to come. He advocated the creation of a forest department in Great Britain, the careful conservation of existing and the creation of new forests by planting vacant lands, the establishment of schools of forestry, and model plantations for the guidance of private owners, and government grants in aid of those objects.

REUTER'S agent at Valparaiso, writing under date February 27th, gives particulars of Mr. Fitzgerald's expedition for the ascent of Aconcagua. The expedition of the Royal Geographical Society left Mendoza on December 7th last. There were, in addition to Mr. Fitzgerald himself, Mr. Vines, geologist; Mr. A. E. Lightbody, an engineer who joined the expedition at Mendoza; Mr. Philip Gosse, a naturalist, and Mr. Allan de Trafford, an engineer, with Mattias Zurbriggen, chief guide; Joseph Pollinger, second guide; Luis Pollinger and Lochmater, additional guides, and Zante Niccolo and Fritz Loribel, attendants. In order to climb Aconcagua they entered the valley of Horcones, where, at a height of 12,500 ft., a camp was pitched on January 7th. Another camp was established at a height of 14,000 ft., from which the actual ascent began. At the height of 18,000 ft. it was decided to plant on the side of Aconcagua the last camp. On January 15th Mr. Fitzgerald, accompanied by the chief guide, started for the summit, but at a height of 23,000 feet found himself unable to proceed. The guide went on alone, however, and on the afternoon of that day reached the highest summit of the mountain. Almost a month later, on February 13th, Mr. Vines also reached the top, after a journey of nine hours. Mr. Vines studied the geological structure of the mountain. The hillside, he said, is porphyritic and has a thick covering of argillaceous earth which cannot sustain vegetation. The south side is broken up into peaks. After the expedition

has made all the necessary observations of the formation of the mountain and the different heights, it will proceed to explore the mountain of Tupungato and also Mercedario, in the province of Coquimbo, which is nearly as high as Aconcagua.

#### UNIVERSITY AND EDUCATIONAL NEWS.

HARVARD UNIVERSITY receives \$50,000 by the wills of the late Miss E. A. Haven and Miss C. M. Haven. Dartmouth College receives \$15,000 from the same source, and Smith College \$3,000 from Miss E. A. Haven.

MR. C. W. SPAULDING, lately Treasurer of the University of Illinois, is said to have used for his own purposes \$400,000 in bonds and a large amount of money belonging to the University.

PRESIDENT DWIGHT, of Yale University, in his annual report recommends that the fiftieth anniversary of the Sheffield Scientific School, which occurs this year, be celebrated by suitable exercises. He states that a new building for the departments of physiology and morphology is needed and hopes that funds will be provided during the year. Gifts and bequests to the University during the last ten years have amounted to more than \$4,000,000.

FROM the report of Cambridge University for 1896 it appears that during the year the University conferred 679 degrees of Bachelor of Arts, 33 of Bachelor of Law, 6 of Doctor of Science and 1 of Doctor of Letters. The total receipts of the University were upwards of £41,000.

WE stated recently that in nearly all cases the State universities had remained non-partisan. We must now record with regret the fact that the Populists, on securing a majority in the Board of Regents of the Kansas State Agricultural College, have dismissed a President who had served for eighteen years, to make room for a young man 'in harmony with the fundamental principles of the administration,' and have removed other members of the faculty and employees.

MR. JUNIUS MORGAN, a Princeton graduate

resident in New York, who is known for his bibliographical collections, some of which he has recently contributed to the Princeton University library, has been appointed associate librarian in that institution. It may be added that the north stack room of the new library building at Princeton is nearing completion and the main collections are to be removed to it during the coming summer.

MR. W. B. MORTON has been appointed professor of natural philosophy in Queen's College, Belfast, filling the vacancy caused by the resignation of Dr. J. D. Everett.

PROFESSOR R. VON LENDENFELD, of Czernowitz, has been appointed professor of zoology in the German University at Prague. Dr. v. Below, of the Münster Academy, has been called to the chair of zoology at Marburg. Dr. Ludwig Heim has been appointed assistant professor of bacteriology. Dr. Gadamer has qualified as docent in pharmaceutical chemistry, at the University of Marburg.

#### DISCUSSION AND CORRESPONDENCE.

##### MR. LOWELL'S OBSERVATIONS OF MERCURY AND VENUS.

THE *Monthly Notices* of the Royal Astronomical Society for January, 1897, contains plates of drawings of Mercury and Venus, made by Mr. Lowell, at the Flagstaff Observatory, in 1896. The markings on Mercury were 'at once conspicuous' with the new twenty-four-inch object-glass; those on Venus are 'perfectly distinct and unmistakable.' The undersigned made a considerable number of observations of Mercury in the years 1873-1885, and a very large number of Venus in the years 1873-1890, with telescopes of six, sixteen, twenty-six, thirty-six inches in aperture, without ever once seeing markings of the character depicted by Mr. Lowell. Other markings of the class drawn by Schiaparelli and many other observers have, on the other hand, been seen and recorded whenever the conditions of vision were good. I have no hesitation in saying that such markings as are shown by Mr. Lowell did not exist on Venus before 1890. It is my opinion that they do not now exist on the planet, but that they